

- The receiving neuron is called *postsynaptic neuron*
- The *terminal buttons* are swollen membranous areas at the end of axons where many small vesicles filled with neurotransmitters are kept
 - *Acetylcholine* is a very common example in humans
- When an action potential reaches the terminal buttons:
 - Calcium channels open and Ca^{2+} diffuse into them
 - Vesicles containing the neurotransmitter fuse with the plasma membrane releasing the neurotransmitter into the synaptic cleft
 - The neurotransmitter diffuses from the presynaptic to postsynaptic neuron
 - The neurotransmitter binds with a receptor protein on the postsynaptic neuron membrane
 - This binding results in a Na^+ channel to open and Na^+ to diffuse in through this channel
 - This initiates the action potential to begin moving down the postsynaptic neuron
 - As it's depolarized and the impulse is self-propagating
 - The neurotransmitter is degraded by a specific enzyme and it's released from the receptor protein
 - The ion channel closes to Na^+
 - Neurotransmitter fragments diffuse back across the synaptic gap to be reassembled in the terminal buttons of the presynaptic neuron
 - This is often called *reuptake*
- Synapses can also occur where a motor neuron adjoins muscle tissue
 - This type of synapse is called *motor end plate* or *neuromuscular junction*
 - The same mechanism, but instead a muscle contracts
- Another place for a synapse is between a receptor neuron (cell) of the nervous system and the first sensory neuron

Insecticides

- *Neonicotinoid* insecticides are chemically similar to nicotine
- This type of insecticides bind to postsynaptic receptors that usually accept acetylcholine resulting in the normal continuation of the action potential
 - The impulse isn't propagated when neonicotinoids bind with the receptor
- The neonicotinoids aren't broken down by the enzyme acetylcholinesterase and thus the receptor becomes permanently blocked
 - Leads to paralysis of the insect and eventually death